

EXHIBIT 4

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

NETLIST, INC.

Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD.,
SAMSUNG ELECTRONICS AMERICA, INC.
and SAMSUNG SEMICONDUCTOR, INC.,

Defendants.

Civil Case No. 2:21-cv-00463-JRG

JURY TRIAL DEMANDED

**DEFENDANTS' P.R. 4-2(a) PRELIMINARY CLAIM
CONSTRUCTIONS AND EXTRINSIC EVIDENCE**

Pursuant to P.R. 4-2 and to the Court's Docket Control Order (Dkt. 34), Defendants Samsung Electronics Co., Ltd., Samsung Electronics America, Inc., and Samsung Semiconductor, Inc. (collectively "Samsung" or "Defendants"), hereby provide their Patent L.R. 4.2(a) and 4.2(b) disclosures.

The below chart includes Samsung's preliminary claim constructions and extrinsic evidence. Samsung's investigation and discovery are ongoing, and therefore Samsung reserves the right to modify the proposed claim constructions as well as to modify, add, or delete terms, phrases and/or clauses based on, without limitation, the constructions served or proposed by Plaintiff Netlist, Inc. ("Netlist"), information learned in the course of meeting and conferring with Netlist's counsel, information learned through the course of discovery or other means, and any further changes or amendments to the parties' infringement or invalidity contentions. Samsung reserves the right to rely on any evidence disclosed by Netlist in its Patent L.R. 4.2(a) and 4.2(b) disclosures. Samsung also reserves the right to supplement its preliminary claim constructions with extrinsic evidence or expert testimony, including in rebuttal to Netlist's preliminary or subsequent claim constructions. Inclusion of evidence as extrinsic below, such as IPR proceedings, does not preclude the same evidence from being considered as intrinsic evidence.

Samsung reserves the right to modify, supplement, or amend its list of claim terms, phrases, clauses and/or constructions set forth below. Additionally, Samsung reserves the right to separately request construction of portions of the identified claim terms, phrases, and/or clauses. For example, these proposed claim constructions are based on Netlist's current infringement contentions. Should Netlist assert that other claims are infringed, amend their infringement contentions, or should other claims otherwise become relevant, Samsung reserves

the right to propose new claim constructions as required. Should Netlist seek an improper interpretation of a term, phrase, and/or clause that has not been identified by the parties, Samsung reserves the right to seek the construction of that term, phrase, and/or clause. Samsung further reserves the right to identify additional extrinsic evidence to rebut the proposed constructions of Netlist.

The claim terms, phrases, and/or clauses are generally identified at least with respect to the patent where such terms, phrases, and/or clauses occur. Unless otherwise indicated below, any additional occurrence, including in related asserted patents, of a listed claim term, phrase, and/or clause is intended to receive the same construction as the listed term, phrase, and/or clause, regardless of whether the later occurrence is also listed below.

Samsung's preliminary claim constructions shall not act as a waiver of any defense of noninfringement, invalidity, or unenforceability of any of Netlist's asserted patents. Notwithstanding the preliminary claim constructions contained herein of any term, phrase, and/or clause, Samsung expressly reserves the right to challenge the validity of any or all claims in Netlist's asserted patents on all possible grounds.

Samsung further reserves all rights to assert that terms, phrases, and/or clauses in the patents-in-suit are invalid under 35 U.S.C. § 112, including without limitation the terms, phrases, and/or clauses listed in Samsung's Invalidity Contentions and any amendments or supplements thereto.

The inclusion of any claim terms, phrases, and/or clauses on this list is not intended, and should not be construed to mean, that any such terms, phrases, and/or clauses have a special or uncommon meaning. Additionally, the inclusion of any claim terms, phrases, and/or clauses on this list is not intended to and does not constitute an admission that the term, phrase, and/or

clause is capable of construction and not indefinite under 35 U.S.C. § 112, lacking enablement or adequate written description, or otherwise incapable of construction. Samsung reserves the right to contest any such terms, phrases, and/or clauses and the validity of any claim of the patents-in-suit.

To the extent the claim terms, phrases, and/or clauses set forth herein include particular terms, phrases, and/or clauses appropriate to be construed separately, such terms, phrases, and/or clauses are deemed part of this disclosed list. Similarly, to the extent it is appropriate to construe terms, phrases, and/or clauses listed herein in the context of additional claim language, such additional language is deemed part of this disclosure.

I. PRELIMINARY PROPOSED CLAIM CONSTRUCTIONS

Subject to the above limitations and reservations of right, Samsung preliminarily proposes the following claim constructions.

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
1	<p>“a second plurality of address and control signals”</p> <p>’918 patent: 1-3, 5-7, 9-13, 15, 21</p>	<p>“a second plurality of address and control signals that are distinct from a first plurality of address and control signals”</p> <p><u>Extrinsic Evidence:</u></p> <p>IPR2017-00692, Paper 1 (Petition) at 57-68</p> <p>IPR2017-00692, Paper 25 (FWD) at 32-36</p> <p>IPR2014-00994, Paper 7 (POPR) at 29-30, 34</p> <p>IPR2014-00994, Paper 8 (Institution Decision) at 7, 8-9, 11</p> <p>IPR2014-01370, Paper 8 (Petition) at 9-10</p> <p>IPR2014-01370, Paper 11 (POPR) at 41-43</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>IPR2014-01370, Paper 13 (Institution Decision) at 2, 6, 9</p> <p>IPR2017-00649, Paper 1 (Petition) at 7</p> <p>IPR2017-00649, Paper 7 (Institution Decision) at 3</p> <p>IPR2022-00418, Paper 2 (Petition) at 7</p> <p>IPR2017-00730 Paper 1 (Petition) at 19-20</p> <p>IPR2017-00730 Paper 1 (Petition) at 28</p> <p>IPR2017-00730 Paper 6 (POPR) at 9-10</p> <p>IPR2022-00237, Paper 12 (POPR) at 29</p> <p>IPR2022-00996, Paper 1 (Petition) at 96</p> <p>2011-10-18 Netlist Response to Office Action for Patent App. 12/240,916 at 14-15</p> <p>2012-05-24 Netlist Response to Office Action for Patent App. 12/240,916 at 17-14</p> <p>2017-11-06 Netlist Response to Office Action for Patent App. 14/840,865 at 11-13</p> <p>2020-03-12 Netlist Response to Office Action for Patent App. 15/934,416 at 9-11</p> <p>Defendants may rely on testimony of Dr. David Liu and/or Dr. Paul Min to explain the technology, the state of the art at the time the application leading to the '918 patent was filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
2	"dual buck converter" / "dual-buck converter"	"buck converter with two outputs outputting two distinct regulated voltages"

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
	'918 patent: 2, 17, 28 '054 patent: 15	<p><u>Extrinsic Evidence:</u></p> <p>IPR2022-00996, Paper 1 (Petition) at 36-38</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '918 and '054 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
3	<p>"configuration information"</p> <p>'918 patent: 10, 11, 15, 22</p>	<p>"information for configuring the operation of the memory module"</p> <p><u>Extrinsic Evidence:</u></p> <p>Newton's Telecom Dictionary, 23rd ed. (2007)</p> <p>IPR2017-00649, Paper 1 (Petition) at 43</p> <p>IPR2022-00418, Paper 2 (Petition) at 56</p> <p>IPR2022-00236, Paper 2 (Petition) at 68</p> <p>IPR2022-00237, Paper 12 (POPR) at 64.</p> <p>IPR2022-00996, Paper 1 (Petition) at 67-68, 117</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the application leading to the '918 patent was filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
4	<p>“writes information”</p> <p>’918 patent: 11</p>	<p>“writes data from the plurality of SDRAM devices”</p> <p><u>Extrinsic Evidence:</u></p> <p>IPR2017-00692, Paper 1 (Petition) at 36, 45-46, 61-63</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the application leading to the ’918 patent was filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist’s claim construction positions and any testimony of Netlist’s expert(s) and witnesses.</p>
5	<p>“write operation”</p> <p>’918 patent: 12, 18, 19, 25, 26</p>	<p>“operation for writing from the plurality of SDRAM devices”</p> <p><u>Extrinsic Evidence:</u></p> <p>IPR2017-00692, Paper 1 (Petition) at 36, 45-46, 61-63</p> <p>IPR2022-00062, Paper 1 (Petition) at 20-21</p> <p>IPR2022-00064 Paper 14 (Institution Decision) at 3</p> <p>IPR2022-00639, Paper 1 (Petition) at 56</p> <p>IPR2022-00996, Paper 1 (Petition) at 69</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the application leading to the ’918 patent was filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist’s claim construction</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		positions and any testimony of Netlist's expert(s) and witnesses.
6	<p>"pre-regulated input voltage" / "input voltage"</p> <p>'918 patent: 16-22, 30</p>	<p>"regulated voltage generated on the memory module from an input voltage"</p> <p><u>Extrinsic Evidence:</u></p> <p>IPR2022-00996, Paper 1 (Petition) at 73-75</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the application leading to the '918 patent was filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
7	<p>"data information"</p> <p>'918 patent: 19, 26</p>	<p>"data stored by the plurality of SDRAM devices"</p> <p><u>Extrinsic Evidence:</u></p> <p>IPR2022-00236, Paper 12 (POPR) at 4</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the application leading to the '918 patent was filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
8	<p>"non-volatile memory"</p> <p>'918 patent: 10-12, 15, 19, 22, 26 '054 patent: 5, 7, 23, 24</p>	<p>"persistent storage for user data"</p> <p><u>Extrinsic Evidence:</u></p> <p>IPR2017-00692, Paper 25 (FWD) at 21-22</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>IPR2017-00692, Paper 6 (POPR) at 11-12, 14</p> <p>IPR2014-00994, Paper 1 (Petition) at 10, 17, 21-22</p> <p>IPR2014-00994, Paper 7 (POPR) at 24</p> <p>IPR2014-01370, Paper 8 (Petition) at 9, 38, 47, 56-57</p> <p>IPR2014-01370, Paper 13 (Institution Decision) at 15</p> <p>IPR2017-00649, Paper 6 (POPR) at 4</p> <p>IPR2022-00996, Paper 1 (Petition) at 82</p> <p><i>Netlist, Inc. v. Micron Tech., Inc.</i>, 1:22-cv-00134 (W.D. Tex. April 28, 2021) Complaint ¶ 22</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '918 and '054 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
9	<p>"first" / "second" / "third" / "fourth" "regulated voltages" / "voltage amplitude(s)"</p> <p>'918 patent: All asserted claims</p>	<p>"first regulated voltage that is distinct from the second, third, and fourth regulated voltages" / "second regulated voltage that is distinct from the first, third, and fourth regulated voltages" / "third regulated voltage that is distinct from the first, second, and fourth regulated voltages" / "fourth regulated voltage that is distinct from the first, second, and third regulated voltages"</p> <p>"first voltage amplitude that is distinct from the second, third, and fourth voltage amplitudes" /</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>“second voltage amplitude that is distinct from the first, third, and fourth voltage amplitudes” / “third voltage amplitude that is distinct from the first, second, and fourth voltage amplitude” / “fourth voltage amplitude that is distinct from the first, second, and third voltage amplitude”</p> <p><u>Extrinsic Evidence:</u></p> <p>IPR2017-00692, Paper 1 (Petition) at 57-68</p> <p>IPR2017-00692, Paper 25 (FWD) at 32-36</p> <p>IPR2014-00994, Paper 7 (POPR) at 29-30, 34</p> <p>IPR2014-00994, Paper 8 (Institution Decision) at 7, 8-9, 11</p> <p>IPR2014-01370, Paper 8 (Petition) at 9-10</p> <p>IPR2014-01370, Paper 11 (POPR) at 41-43</p> <p>IPR2014-01370, Paper 13 (Institution Decision) at 2, 6, 9</p> <p>IPR2017-00649, Paper 1 (Petition) at 7</p> <p>IPR2017-00649, Paper 7 (Institution Decision) at 3</p> <p>IPR2022-00418, Paper 2 (Petition) at 7</p> <p>2011-10-18 Netlist Response to Office Action for Patent App. 12/240,916 at 14-15</p> <p>2012-05-24 Netlist Response to Office Action for Patent App. 12/240,916 at 17-14</p> <p>2017-11-06 Netlist Response to Office Action for Patent App. 14/840,865 at 11-13</p> <p>2020-03-12 Netlist Response to Office Action for Patent App. 15/934,416 at 9-11</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the application leading to the</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>'918 patent was filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
10	<p>"the plurality of SDRAM devices are powered on"</p> <p>'918 patent: 23-30</p>	<p>"the plurality of SDRAM devices are powered so as to be fully functional"</p> <p><u>Extrinsic Evidence:</u></p> <p>IPR2022-00996, Paper 1 (Petition) at 112</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the application leading to the '918 patent was filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
11	<p>"operable state"</p> <p>'054 patent: 4-7, 11-12, 16-17, 23, 25-28</p>	<p>"state in which the plurality of SDRAM devices are operable"</p> <p><u>Extrinsic Evidence:</u></p> <p>The New Oxford American Dictionary, 2nd ed. (2005)</p> <p>IPR2014-01370, Paper 8 (Petition) at 22</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>IPR2014-01370, Paper 11 (POPR) at 15, 19</p> <p>IPR2022-00999, Paper 1 (Petition) at 49-50</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the application leading to the '054 patent was filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
12	<p>"write operation to transfer data"</p> <p>'054 patent: 5, 7, 23, 24</p>	<p>"operation for transferring data from the plurality of SDRAM devices"</p> <p><u>Extrinsic Evidence:</u></p> <p>IPR2017-00692, Paper 1 (Petition) at 36, 45-46, 61-63</p> <p>IPR2022-00062, Paper 1 (Petition) at 20-21</p> <p>IPR2022-00999, Paper 1 (Petition) at 105-06</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the application leading to the '054 patent was filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		positions and any testimony of Netlist's expert(s) and witnesses.
13	<p>"at least three regulated voltages" / "plurality of regulated voltages"</p> <p>'054 patent: All asserted claims</p>	<p>"at least three distinct regulated voltages" / "plurality of distinct regulated voltages"</p> <p><u>Extrinsic Evidence:</u></p> <p>IPR2017-00692, Paper 1 (Petition) at 57-68</p> <p>IPR2017-00692, Paper 25 (FWD) at 32-36</p> <p>IPR2014-00994, Paper 7 (POPR) at 29-30, 34</p> <p>IPR2014-00994, Paper 8 (Institution Decision) at 7, 8-9, 11</p> <p>IPR2014-01370, Paper 8 (Petition) at 9-10</p> <p>IPR2014-01370, Paper 11 (POPR) at 41-43</p> <p>IPR2014-01370, Paper 13 (Institution Decision) at 2, 6, 9</p> <p>IPR2017-00649, Paper 1 (Petition) at 7</p> <p>IPR2017-00649, Paper 7 (Institution Decision) at 3</p> <p>IPR2022-00418, Paper 2 (Petition) at 7</p> <p>2011-10-18 Netlist Response to Office Action for Patent App. 12/240,916 at 14-15</p> <p>2012-05-24 Netlist Response to Office Action for Patent App. 12/240,916 at 17-14</p> <p>2017-11-06 Netlist Response to Office Action for Patent App. 14/840,865 at 11-13</p> <p>2020-03-12 Netlist Response to Office Action for Patent App. 15/934,416 at 9-11</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the application leading to the '054 patent was filed, the level of ordinary skill in the relevant art, and the meaning of this claim</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
14	<p>"A memory module"</p> <p>'918 patent: All asserted claims '054 patent: All asserted claims</p>	<p>The preamble is non-limiting.</p> <p>Plain and ordinary meaning.</p> <p><u>Extrinsic Evidence:</u></p> <p>IPR2017-00692, Paper 1 (Petition) at 20, 49, 66</p> <p>IPR2017-00692, Paper 6 (POPR) at 20-21</p> <p>IPR2017-00692, Paper 7 (Institution) at 10</p> <p>IPR2017-00692, Paper 12 (POPR) at 1-3, 13-41, 43-45</p> <p>IPR2017-00692, Paper 15 (Pet Reply) at 1-19</p> <p>IPR2017-00692, Paper 25 (FWD) at 9-14, 21, 25-26, 30</p> <p>IPR2022-00999, Paper 1 (Petition) at 19</p> <p>IPR2022-00996, Paper 1 (Petition) at 19</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '918 and '054 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.
15	<p>"buck converter"</p> <p>'918 patent: All asserted claims '054 patent: All asserted claims</p>	<p>Plain and ordinary meaning.</p> <p><u>Extrinsic Evidence:</u></p> <p>Power Electronics, Ned Mohan, at 161-72, 331-40</p> <p>Comprehensive Dictionary of Electrical Engineering, Second Edition, at 84 (2005)</p> <p>IPR2022-00996, Paper 1 (Petition) at 28-29</p> <p>IPR2022-00999, Paper 1 (Petition) at 28-29</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '918 and '054 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
16	<p>"a plurality of edge connections configured to couple power, data, address and control signals between the memory module and the host system"</p> <p>'918 patent: All asserted claims '054 patent: All asserted claims</p>	<p>Plain and ordinary meaning.</p> <p><u>Extrinsic Evidence:</u></p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '918 and '054 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
17	<p>"a memory package"</p> <p>'060 patent: All asserted claims '160 patent: All asserted claims</p>	<p>The preamble is limiting.</p> <p><u>Extrinsic Evidence:</u></p> <p>Wiley Electrical and Electronics Engineering Dictionary, IEEE Press, at 547 (2004)</p> <p>Comprehensive Dictionary of Electrical Engineering, CRC Press, Second Edition, at 503 (2005)</p> <p>Dictionary of Science and Technology, A&C Black, Second Edition, at 448 (2007)</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '060 and '160 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
18	<p>"chip-select signals" / "chip-select conduits"</p> <p>'060 patent: 6, 11-14, 16-21, 23-28</p>	<p>Plain and ordinary meaning.</p> <p><u>Extrinsic Evidence:</u></p> <p>Dictionary of Computing, A&C Black, Sixth Edition, at 62 (2010)</p> <p>A Dictionary of Computing, Oxford University Press, Sixth Edition, at 466 (2008)</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>Electronics Dictionary: Definitions for the Digital Age, Collins, Third Edition, at 68 (2007)</p> <p>The Cambridge Aerospace Dictionary, Cambridge University Press, Second Edition, at 615-16 (2009)</p> <p>Dictionary of Energy, Elsevier, at 459 (2009)</p> <p>Wiley Electrical and Electronics Engineering Dictionary, IEEE Press, at 707 (2004)</p> <p>Comprehensive Dictionary of Electrical Engineering, CRC Press, Second Edition, at 626-27 (2005)</p> <p>Dictionary of Science and Technology, A&C Black, Second Edition, at 555 (2007)</p> <p>Webster's New World Telecom Dictionary, Wiley Publishing, Inc., at 438 (2008)</p> <p>Dictionary of Science and Technology, Chambers, at 1093 (2007)</p> <p>Telecom Dictionary, Althos Publishing, at 493 (2007)</p> <p>Newton's Telecom Dictionary, Flatiron Publishing, 26th Edition, at 1042 (2011)</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '060 and '160 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		positions and any testimony of Netlist's expert(s) and witnesses.
19	<p>"array die"</p> <p>'060 patent: All asserted claims '160 patent: All asserted claims</p>	<p>"array die that is different from a DRAM circuit"</p> <p><u>Extrinsic Evidence:</u></p> <p>Dictionary of Computing, A&C Black, Sixth Edition, at 20 (2010)</p> <p>Wiley Electrical and Electronics Engineering Dictionary, IEEE Press, at 36 (2004)</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '060 and '160 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
20	<p>"The memory package of claim 1, wherein a first number of array dies in the first group of array dies and a second number of at least one array die in the second group of at least one array die are selected in consideration of a load of the first die interconnect and a load of the second die interconnect so as to reduce a difference between a first load on the first data conduit and a second load on the second data conduit, the first load including a load of the first die interconnect, and a load of the first group of array dies, and the second load</p>	<p>Indefinite mixed method and apparatus.</p> <p><u>Extrinsic Evidence:</u></p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '060 and '160 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
	including a load of the second die interconnect and a load of the second group of at least one array die.” '060 patent: 7	positions and any testimony of Netlist’s expert(s) and witnesses.
21	“one or more previous operations” ¹ '506 patent: 1-3, 11, 15, 16	<p>“one or more previous normal memory operations”</p> <p><u>Extrinsic evidence:</u></p> <p>IPR2017-00730, Paper 6 (POPR) at 10-13, 21-22, 28</p> <p>IPR2022-00236, Paper 12 (POPR) at 4, 7, 13-24</p> <p>IPR2022-00236, Paper 16 (Institution Decision) at 24</p> <p>IPR2022-0237, Paper 12 (POPR) at 6-8</p> <p>U.S. Patent No. 9,128,632, File History, 2014-12-31 Amendment and Request for Reconsideration After Non-Final Rejection at 10</p> <p>U.S. Patent No. 9,824,035, File History, 2017-09-21 Notice of Allowance at 3</p> <p>U.S. Patent No. 10,268,608, File History, 2018-01-25 Office Action at 11</p> <p>U.S. Patent No. 10,268,608, File History, 2018-05-24 Amendment and Request for Reconsideration After Non-Final Rejection at 3</p> <p>U.S. Patent No. 10,268,608, File History, 2018-11-19 Notice of Allowance at 3</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of</p>

¹ Samsung agrees to include the words “one or more” as part of this term, as proposed by Netlist.

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
22	<p>"before receiving the input C/A signals corresponding to the memory read operation"</p> <p>'506 patent: 14</p>	<p>"during one or more previous normal memory operations"</p> <p><u>Extrinsic evidence:</u></p> <p>IPR2017-00730, Paper 6 (POPR) at 10-13, 21-22, 28</p> <p>IPR2022-00236, Paper 12 (POPR) at 4, 7, 13-24</p> <p>IPR2022-00236, Paper 16 (Institution Decision) at 24</p> <p>IPR2022-0237, Paper 12 (POPR) at 6-8</p> <p>U.S. Patent No. 9,128,632, File History, 2014-12-31 Amendment and Request for Reconsideration After Non-Final Rejection at 10</p> <p>U.S. Patent No. 9,824,035, File History, 2017-09-21 Notice of Allowance at 3</p> <p>U.S. Patent No. 10,268,608, File History, 2018-01-25 Office Action at 11</p> <p>U.S. Patent No. 10,268,608, File History, 2018-05-24 Amendment and Request for Reconsideration After Non-Final Rejection at 3</p> <p>U.S. Patent No. 10,268,608, File History, 2018-11-19 Notice of Allowance at 3</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
23	<p>"each respective byte-wise buffer further includes logic configurable to control the byte-wise data path in response to the module control signals"</p> <p>'339 patent: 1</p>	<p>"each respective byte-wise buffer further includes logic configurable to, in response to the module control signals, activate the byte-wise data path connected to a first DDR DRAM device (in a first N-bit-wide rank), and disable the byte-wise data path connected to a second DDR DRAM device (in a second N-bit-wide rank), to cause a respective byte-wise section of the N-bit wide write data to be sent from the first side to the first DDR DRAM device along the activated byte-wise data path and not sent to the second DDR DRAM device along the disabled byte-wise data path"</p> <p><u>Extrinsic evidence:</u></p> <p>U.S. Patent No. 8,516,185, File History, 2012-06-21 Amendment and Request for Reconsideration after Non-Final Rejection at 7-9</p> <p>U.S. Patent No. 8,516,185, File History, 2012-09-13 Office Action at 4-5, 11-13</p> <p>U.S. Patent No. 8,516,185, File History, 2013-03-13 Amendment and Request for Reconsideration after Non-Final Rejection at 10-13</p> <p>U.S. Patent No. 8,516,185, File History, 2013-07-11 Notice of Allowance at 2-4</p> <p>U.S. Patent No. 8,417,870, File History, 2013-02-02 Notice of Allowance at 7-9</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>U.S. Patent No. 9,606,907, File History, 2015-11-23 Office Action at 5-6</p> <p>U.S. Patent No. 9,606,907, File History, 2016-10-06 Office Action at 2-5, 7</p> <p>U.S. Patent No. 9,606,907, File History, 2016-11-03 Amendment at 29-34</p> <p>U.S. Patent No. 9,606,907, File History, 2017-02-23 Corrected Notice of Allowability at 2-3</p> <p>IPR2014-01029, Paper 10 (POPR) at 4-6</p> <p>IPR2014-01029, Paper 11 (Institution Decision) at 2-3</p> <p>IPR2014-01369, Paper 11 (POPR) at 5-6, 19, 35-41.</p> <p>IPR2014-01369, Paper 12 (Institution Decision) at 2-4, 6-8</p> <p>IPR2017-00577, Paper 6 (POPR) at 2-6, 9-11, 13-17, 18-47, 50-65</p> <p>IPR2017-00577, Paper 8 (Institution Decision) at 3-4, 9-10</p> <p>IPR2017-00577, Paper 26 (Final Written Decision) at 3-4, 14-16</p> <p><i>Netlist, Inc v. Smart Modular Technologies, Inc.</i>, No. 4:13-cv-05889-YGR, Dkt. No. 253 at 11-12, 15-16 (N.D. Cal. Aug. 27, 2014)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 117, Exhibit A at 8-14, 20-40 (C.D. Cal. May 19, 2017)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 124 at 6-11 (C.D. Cal. May 26, 2017)</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p><i>Netlist, Inc. v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 143 at 2-9 (C.D. Cal. June 30, 2017)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof, and Products Containing the Same</i>, Inv. No. 337-TA-1023, Nov. 14, 2017 Initial Determination at 116-121 (USITC filed Sept. 1, 2016)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof, and Products Containing the Same</i>, Inv. No. 337-TA-1023, Jan. 16, 2018 Commission Review at 1-2 (USITC filed Sept. 1, 2016)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof</i>, Inv. No. 337-TA-1089, Nov. 22, 2019 Complainant Netlist, Inc.’s Omnibus Response to Respondents’ and Staff’s Petitions for Review at 29-33 (USITC filed Oct. 31, 2017)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof</i>, Inv. No. 337-TA-1089, Apr. 21, 2020 Commission Opinion at 7-13 (USITC filed Oct. 31, 2017)</p> <p>Collins English Dictionary, Seventh Edition, at 16 (2005)</p> <p>The New Oxford American Dictionary, Second Edition, at 15-16 (2005)</p> <p>Newton's Telecom Dictionary, 24th Edition, at 180-81, 263 (2008)</p> <p>McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition, at 294 (2003)</p> <p>Dictionary of Computing, Fifth Edition, at 92, 94 (2004)</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>Wiley Electrical and Electronics Engineering Dictionary, at 212, 256 (2004)</p> <p>A Dictionary of Computing, Fifth Edition, at 179 (2004)</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
24	<p>"wherein the byte-wise data path is enabled for a first time period in accordance with a latency parameter to actively drive a respective byte-wise section of the N-bit wide write data associated with the memory operation from the first side to the second side during the first time period"²</p> <p>'339 patent: 1</p>	<p>"wherein the byte-wise data path connected to a first DDR DRAM device (in a first N-bit-wide rank) is activated, and the byte-wise data path connected to a second DDR DRAM device (in a second N-bit-wide rank) is disabled, to cause a respective byte-wise section of the N-bit wide write data associated with the memory operation to be sent from the first side to the first DDR DRAM device along the activated byte-wise data path and not sent to the second DDR DRAM device along the disabled byte-wise data path during the first</p>

² Samsung agrees to include the word "wherein" as part of this term, as proposed by Netlist. Given this addition, Samsung's terms 24 and 25 should be combined into a single term and construed as: "each respective byte-wise buffer further includes logic configurable to, in response to the module control signals, activate the byte-wise data path connected to a first DDR DRAM device (in a first N-bit-wide rank), and disable the byte-wise data path connected to a second DDR DRAM device (in a second N-bit-wide rank), to cause a respective byte-wise section of the N-bit wide write data associated with the memory operation to be sent from the first side to the first DDR DRAM device along the activated byte-wise data path and not sent to the second DDR DRAM device along the disabled byte-wise data path during the first time period in accordance with a latency parameter."

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>time period in accordance with a latency parameter”</p> <p><u>Extrinsic evidence:</u></p> <p>U.S. Patent No. 8,516,185, File History, 2012-06-21 Amendment and Request for Reconsideration after Non-Final Rejection at 7-9</p> <p>U.S. Patent No. 8,516,185, File History, 2012-09-13 Office Action at 4-5, 11-13</p> <p>U.S. Patent No. 8,516,185, File History, 2013-03-13 Amendment and Request for Reconsideration after Non-Final Rejection at 10-13</p> <p>U.S. Patent No. 8,516,185, File History, 2013-07-11 Notice of Allowance at 2-4</p> <p>U.S. Patent No. 8,417,870, File History, 2013-02-02 Notice of Allowance at 7-9</p> <p>U.S. Patent No. 9,606,907, File History, 2015-11-23 Office Action at 5-6</p> <p>U.S. Patent No. 9,606,907, File History, 2016-10-06 Office Action at 2-5, 7</p> <p>U.S. Patent No. 9,606,907, File History, 2016-11-03 Amendment at 29-34</p> <p>U.S. Patent No. 9,606,907, File History, 2017-02-23 Corrected Notice of Allowability at 2-3</p> <p>IPR2014-01029, Paper 10 (POPR) at 4-6</p> <p>IPR2014-01029, Paper 11 (Institution Decision) at 2-3</p> <p>IPR2014-01369, Paper 11 (POPR) at 5-6, 19, 35-41.</p> <p>IPR2014-01369, Paper 12 (Institution Decision) at 2-4, 6-8</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>IPR2017-00577, Paper 6 (POPR) at 2-6, 9-11, 13-17, 18-47, 50-65</p> <p>IPR2017-00577, Paper 8 (Institution Decision) at 3-4, 9-10</p> <p>IPR2017-00577, Paper 26 (Final Written Decision) at 3-4, 14-16</p> <p><i>Netlist, Inc v. Smart Modular Technologies, Inc.</i>, No. 4:13-cv-05889-YGR, Dkt. No. 253 at 11-12, 15-16 (N.D. Cal. Aug. 27, 2014)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 117, Exhibit A at 8-14, 20-40 (C.D. Cal. May 19, 2017)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 124 at 6-11 (C.D. Cal. May 26, 2017)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 143 at 2-9 (C.D. Cal. June 30, 2017)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof, and Products Containing the Same</i>, Inv. No. 337-TA-1023, Nov. 14, 2017 Initial Determination at 116-121 (USITC filed Sept. 1, 2016)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof, and Products Containing the Same</i>, Inv. No. 337-TA-1023, Jan. 16, 2018 Commission Review at 1-2 (USITC filed Sept. 1, 2016)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof</i>, Inv. No. 337-TA-1089, Nov. 22, 2019 Complainant Netlist, Inc.’s Omnibus Response to Respondents’ and Staff’s Petitions for Review at 29-33 (USITC filed Oct. 31, 2017)</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p><i>In the Matter of Certain Memory Modules and Components Thereof</i>, Inv. No. 337-TA-1089, Apr. 21, 2020 Commission Opinion at 7-13 (USITC filed Oct. 31, 2017)</p> <p>Collins English Dictionary, Seventh Edition, at 16 (2005)</p> <p>The New Oxford American Dictionary, Second Edition, at 15-16 (2005)</p> <p>Newton's Telecom Dictionary, 24th Edition, at 180-81, 263 (2008)</p> <p>McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition, at 294 (2003)</p> <p>Dictionary of Computing, Fifth Edition, at 92, 94 (2004)</p> <p>Wiley Electrical and Electronics Engineering Dictionary, at 212, 256 (2004)</p> <p>A Dictionary of Computing, Fifth Edition, at 179 (2004)</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
25	"logic in response to the module control signals is configured to enable the first tristate buffers to	"logic in response to the module control signals is configured to enable the first tristate buffers to activate the byte-wise data path connected to a first

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
	<p>drive the respective byte-wise section of the N-bit wide write data to the respective module data lines during the first time period”</p> <p>’339 patent: 1</p>	<p>DDR DRAM device (in a first N-bit-wide rank) and disable the byte-wise data path connected to a second DDR DRAM device (in a second N-bit-wide rank), to cause the respective byte-wise section of the N-bit wide write data to be sent from the first side to the module data lines coupled to the first DDR DRAM device along the activated byte-wise data path and not sent to the module data lines coupled to the second DDR DRAM device along the disabled byte-wise data path during the first time period”</p> <p><u>Extrinsic evidence:</u></p> <p>U.S. Patent No. 8,516,185, File History, 2012-06-21 Amendment and Request for Reconsideration after Non-Final Rejection at 7-9</p> <p>U.S. Patent No. 8,516,185, File History, 2012-09-13 Office Action at 4-5, 11-13</p> <p>U.S. Patent No. 8,516,185, File History, 2013-03-13 Amendment and Request for Reconsideration after Non-Final Rejection at 10-13</p> <p>U.S. Patent No. 8,516,185, File History, 2013-07-11 Notice of Allowance at 2-4</p> <p>U.S. Patent No. 8,417,870, File History, 2013-02-02 Notice of Allowance at 7-9</p> <p>U.S. Patent No. 9,606,907, File History, 2015-11-23 Office Action at 5-6</p> <p>U.S. Patent No. 9,606,907, File History, 2016-10-06 Office Action at 2-5, 7</p> <p>U.S. Patent No. 9,606,907, File History, 2016-11-03 Amendment at 29-34</p> <p>U.S. Patent No. 9,606,907, File History, 2017-02-23 Corrected Notice of Allowability at 2-3</p> <p>IPR2014-01029, Paper 10 (POPR) at 4-6</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>IPR2014-01029, Paper 11 (Institution Decision) at 2-3</p> <p>IPR2014-01369, Paper 11 (POPR) at 5-6, 19, 35-41.</p> <p>IPR2014-01369, Paper 12 (Institution Decision) at 2-4, 6-8</p> <p>IPR2017-00577, Paper 6 (POPR) at 2-6, 9-11, 13-17, 18-47, 50-65</p> <p>IPR2017-00577, Paper 8 (Institution Decision) at 3-4, 9-10</p> <p>IPR2017-00577, Paper 26 (Final Written Decision) at 3-4, 14-16</p> <p><i>Netlist, Inc v. Smart Modular Technologies, Inc.</i>, No. 4:13-cv-05889-YGR, Dkt. No. 253 at 11-12, 15-16 (N.D. Cal. Aug. 27, 2014)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 117, Exhibit A at 8-14, 20-40 (C.D. Cal. May 19, 2017)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 124 at 6-11 (C.D. Cal. May 26, 2017)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 143 at 2-9 (C.D. Cal. June 30, 2017)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof, and Products Containing the Same</i>, Inv. No. 337-TA-1023, Nov. 14, 2017 Initial Determination at 116-121 (USITC filed Sept. 1, 2016)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof, and Products Containing the Same</i>, Inv. No. 337-TA-1023, Jan. 16, 2018</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>Commission Review at 1-2 (USITC filed Sept. 1, 2016)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof</i>, Inv. No. 337-TA-1089, Nov. 22, 2019 Complainant Netlist, Inc.’s Omnibus Response to Respondents’ and Staff’s Petitions for Review at 29-33 (USITC filed Oct. 31, 2017)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof</i>, Inv. No. 337-TA-1089, Apr. 21, 2020 Commission Opinion at 7-13 (USITC filed Oct. 31, 2017)</p> <p>Collins English Dictionary, Seventh Edition, at 16 (2005)</p> <p>The New Oxford American Dictionary, Second Edition, at 15-16 (2005)</p> <p>Newton's Telecom Dictionary, 24th Edition, at 180-81, 263 (2008)</p> <p>McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition, at 294 (2003)</p> <p>Dictionary of Computing, Fifth Edition, at 92, 94 (2004)</p> <p>Wiley Electrical and Electronics Engineering Dictionary, at 212, 256 (2004)</p> <p>A Dictionary of Computing, Fifth Edition, at 179 (2004)</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
26	<p>"each respective data transmission circuit is configurable to enable the data paths for a first time period in accordance with a latency parameter to actively drive a respective section of the N-bit wide write data associated with the memory operation from the first side to the second side during the first time period"</p> <p>'339 patent: 11</p>	<p>"each respective data transmission circuit is configurable to, during the first time period in accordance with a latency parameter, activate the data paths connected to a first respective pair of DDR DRAM devices (in a first N-bit-wide rank), and disable the data paths connected to another respective pair of DDR DRAM devices (in another N-bit-wide rank), to cause a respective section of the N-bit wide write data associated with the memory operation to be sent from the first side to the first respective pair of DDR DRAM devices along the activated data paths and not sent to the other respective pair of DDR DRAM devices along the disabled data paths"</p> <p><u>Extrinsic evidence:</u></p> <p>U.S. Patent No. 8,516,185, File History, 2012-06-21 Amendment and Request for Reconsideration after Non-Final Rejection at 7-9</p> <p>U.S. Patent No. 8,516,185, File History, 2012-09-13 Office Action at 4-5, 11-13</p> <p>U.S. Patent No. 8,516,185, File History, 2013-03-13 Amendment and Request for Reconsideration after Non-Final Rejection at 10-13</p> <p>U.S. Patent No. 8,516,185, File History, 2013-07-11 Notice of Allowance at 2-4</p> <p>U.S. Patent No. 8,417,870, File History, 2013-02-02 Notice of Allowance at 7-9</p> <p>U.S. Patent No. 9,606,907, File History, 2015-11-23 Office Action at 5-6</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>U.S. Patent No. 9,606,907, File History, 2016-10-06 Office Action at 2-5, 7</p> <p>U.S. Patent No. 9,606,907, File History, 2016-11-03 Amendment at 29-34</p> <p>U.S. Patent No. 9,606,907, File History, 2017-02-23 Corrected Notice of Allowability at 2-3</p> <p>IPR2014-01029, Paper 10 (POPR) at 4-6</p> <p>IPR2014-01029, Paper 11 (Institution Decision) at 2-3</p> <p>IPR2014-01369, Paper 11 (POPR) at 5-6, 19, 35-41.</p> <p>IPR2014-01369, Paper 12 (Institution Decision) at 2-4, 6-8</p> <p>IPR2017-00577, Paper 6 (POPR) at 2-6, 9-11, 13-17, 18-47, 50-65</p> <p>IPR2017-00577, Paper 8 (Institution Decision) at 3-4, 9-10</p> <p>IPR2017-00577, Paper 26 (Final Written Decision) at 3-4, 14-16</p> <p><i>Netlist, Inc v. Smart Modular Technologies, Inc.</i>, No. 4:13-cv-05889-YGR, Dkt. No. 253 at 11-12, 15-16 (N.D. Cal. Aug. 27, 2014)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 117, Exhibit A at 8-14, 20-40 (C.D. Cal. May 19, 2017)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 124 at 6-11 (C.D. Cal. May 26, 2017)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 143 at 2-9 (C.D. Cal. June 30, 2017)</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p><i>In the Matter of Certain Memory Modules and Components Thereof, and Products Containing the Same</i>, Inv. No. 337-TA-1023, Nov. 14, 2017 Initial Determination at 116-121 (USITC filed Sept. 1, 2016)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof, and Products Containing the Same</i>, Inv. No. 337-TA-1023, Jan. 16, 2018 Commission Review at 1-2 (USITC filed Sept. 1, 2016)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof</i>, Inv. No. 337-TA-1089, Nov. 22, 2019 Complainant Netlist, Inc.’s Omnibus Response to Respondents’ and Staff’s Petitions for Review at 29-33 (USITC filed Oct. 31, 2017)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof</i>, Inv. No. 337-TA-1089, Apr. 21, 2020 Commission Opinion at 7-13 (USITC filed Oct. 31, 2017)</p> <p>Collins English Dictionary, Seventh Edition, at 16 (2005)</p> <p>The New Oxford American Dictionary, Second Edition, at 15-16 (2005)</p> <p>Newton's Telecom Dictionary, 24th Edition, at 180-81, 263 (2008)</p> <p>McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition, at 294 (2003)</p> <p>Dictionary of Computing, Fifth Edition, at 92, 94 (2004)</p> <p>Wiley Electrical and Electronics Engineering Dictionary, at 212, 256 (2004)</p> <p>A Dictionary of Computing, Fifth Edition, at 179 (2004)</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
27	<p>"the respective data transmission circuit in response to the module control signals is configured to enable a first subset of the first tristate buffers to drive the first subsection of the respective section of the N-bit wide write data to a first subset of the respective module data lines coupled to a first one of the respective pair of DDR DRAM devices in each of at least some of the multiple N-bit-wide ranks, and to enable a second subset of the first tristate buffers to drive a second subsection of the respective section of the N-bit wide write data to a second subset of the respective module data lines coupled to a second one of the respective pair of DDR DRAM devices in each of at least some of the multiple N-bit-wide ranks"</p> <p>'339 patent: 11</p>	<p>"the respective data transmission circuit, in response to the module control signals, is configured to enable a first subset and a second subset of the first tristate buffers to activate the data paths connected to a first respective pair of DDR DRAM devices (in a first N-bit-wide rank), and disable the data paths connected to another respective pair of DDR DRAM devices (in another N-bit-wide rank), to cause the first subsection of the respective section of the N-bit wide write data to be sent from the first side to a first subset of the respective module data lines coupled to a first one of the first respective pair of DDR DRAM devices along one of the activated data paths, and a second subsection of the respective section of the N-bit wide write data to be sent to a second subset of the respective module data lines coupled to a second one of the first respective pair of DDR DRAM devices along another one of the activated data paths, and the respective section of the N-bit wide write data to not be sent to the other respective pair of DDR DRAM devices along the disabled data paths"</p> <p><u>Extrinsic evidence:</u></p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>U.S. Patent No. 8,516,185, File History, 2012-06-21 Amendment and Request for Reconsideration after Non-Final Rejection at 7-9</p> <p>U.S. Patent No. 8,516,185, File History, 2012-09-13 Office Action at 4-5, 11-13</p> <p>U.S. Patent No. 8,516,185, File History, 2013-03-13 Amendment and Request for Reconsideration after Non-Final Rejection at 10-13</p> <p>U.S. Patent No. 8,516,185, File History, 2013-07-11 Notice of Allowance at 2-4</p> <p>U.S. Patent No. 8,417,870, File History, 2013-02-02 Notice of Allowance at 7-9</p> <p>U.S. Patent No. 9,606,907, File History, 2015-11-23 Office Action at 5-6</p> <p>U.S. Patent No. 9,606,907, File History, 2016-10-06 Office Action at 2-5, 7</p> <p>U.S. Patent No. 9,606,907, File History, 2016-11-03 Amendment at 29-34</p> <p>U.S. Patent No. 9,606,907, File History, 2017-02-23 Corrected Notice of Allowability at 2-3</p> <p>IPR2014-01029, Paper 10 (POPR) at 4-6</p> <p>IPR2014-01029, Paper 11 (Institution Decision) at 2-3</p> <p>IPR2014-01369, Paper 11 (POPR) at 5-6, 19, 35-41.</p> <p>IPR2014-01369, Paper 12 (Institution Decision) at 2-4, 6-8</p> <p>IPR2017-00577, Paper 6 (POPR) at 2-6, 9-11, 13-17, 18-47, 50-65</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>IPR2017-00577, Paper 8 (Institution Decision) at 3-4, 9-10</p> <p>IPR2017-00577, Paper 26 (Final Written Decision) at 3-4, 14-16</p> <p><i>Netlist, Inc v. Smart Modular Technologies, Inc.</i>, No. 4:13-cv-05889-YGR, Dkt. No. 253 at 11-12, 15-16 (N.D. Cal. Aug. 27, 2014)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 117, Exhibit A at 8-14, 20-40 (C.D. Cal. May 19, 2017)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 124 at 6-11 (C.D. Cal. May 26, 2017)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 143 at 2-9 (C.D. Cal. June 30, 2017)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof, and Products Containing the Same</i>, Inv. No. 337-TA-1023, Nov. 14, 2017 Initial Determination at 116-121 (USITC filed Sept. 1, 2016)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof, and Products Containing the Same</i>, Inv. No. 337-TA-1023, Jan. 16, 2018 Commission Review at 1-2 (USITC filed Sept. 1, 2016)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof</i>, Inv. No. 337-TA-1089, Nov. 22, 2019 Complainant Netlist, Inc.’s Omnibus Response to Respondents’ and Staff’s Petitions for Review at 29-33 (USITC filed Oct. 31, 2017)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof</i>, Inv. No. 337-TA-1089, Apr. 21, 2020 Commission Opinion at 7-13 (USITC filed Oct. 31, 2017)</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>Collins English Dictionary, Seventh Edition, at 16 (2005)</p> <p>The New Oxford American Dictionary, Second Edition, at 15-16 (2005)</p> <p>Newton's Telecom Dictionary, 24th Edition, at 180-81, 263 (2008)</p> <p>McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition, at 294 (2003)</p> <p>Dictionary of Computing, Fifth Edition, at 92, 94 (2004)</p> <p>Wiley Electrical and Electronics Engineering Dictionary, at 212, 256 (2004)</p> <p>A Dictionary of Computing, Fifth Edition, at 179 (2004)</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
28	<p>"each respective buffer further includes logic configurable to enable the data paths for a first time period to actively drive a respective section of the first N-bit wide data associated with the first memory operation from the</p>	<p>"each respective buffer further includes logic configurable to, during a first time period, activate the data path connected to a first DDR DRAM device (in a first N-bit-wide rank), and disable the data path connected to a second DDR DRAM device (in a second N-bit-wide rank), to cause a respective section of the first N-bit wide data</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
	<p>second side to the first side during the first time period, and to enable the data paths for a second time period subsequent to the first time period to actively drive a respective section of the second N-bit wide data associated with the second memory operation from the second side to the first side during the second time period”</p> <p>’339 patent: 19</p>	<p>associated with the first memory operation to be sent from the first DDR DRAM device to the first side along the activated data path and not sent from the second DDR DRAM device along the disabled data path, and further configurable to, during a second time period subsequent to the first time period, activate the data path connected to the second DDR DRAM device and disable the data path connected to the first DDR DRAM device, to cause a respective section of the second N-bit wide data associated with the second memory operation to be sent from the second DDR DRAM device to the first side along the activated data path and not sent from the first DDR DRAM device along the disabled data path.”</p> <p><u>Extrinsic evidence:</u></p> <p>U.S. Patent No. 8,516,185, File History, 2012-06-21 Amendment and Request for Reconsideration after Non-Final Rejection at 7-9</p> <p>U.S. Patent No. 8,516,185, File History, 2012-09-13 Office Action at 4-5, 11-13</p> <p>U.S. Patent No. 8,516,185, File History, 2013-03-13 Amendment and Request for Reconsideration after Non-Final Rejection at 10-13</p> <p>U.S. Patent No. 8,516,185, File History, 2013-07-11 Notice of Allowance at 2-4</p> <p>U.S. Patent No. 8,417,870, File History, 2013-02-02 Notice of Allowance at 7-9</p> <p>U.S. Patent No. 9,606,907, File History, 2015-11-23 Office Action at 5-6</p> <p>U.S. Patent No. 9,606,907, File History, 2016-10-06 Office Action at 2-5, 7</p> <p>U.S. Patent No. 9,606,907, File History, 2016-11-03 Amendment at 29-34</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>U.S. Patent No. 9,606,907, File History, 2017-02-23 Corrected Notice of Allowability at 2-3</p> <p>IPR2014-01029, Paper 10 (POPR) at 4-6</p> <p>IPR2014-01029, Paper 11 (Institution Decision) at 2-3</p> <p>IPR2014-01369, Paper 11 (POPR) at 5-6, 19, 35-41.</p> <p>IPR2014-01369, Paper 12 (Institution Decision) at 2-4, 6-8</p> <p>IPR2017-00577, Paper 6 (POPR) at 2-6, 9-11, 13-17, 18-47, 50-65</p> <p>IPR2017-00577, Paper 8 (Institution Decision) at 3-4, 9-10</p> <p>IPR2017-00577, Paper 26 (Final Written Decision) at 3-4, 14-16</p> <p><i>Netlist, Inc v. Smart Modular Technologies, Inc.</i>, No. 4:13-cv-05889-YGR, Dkt. No. 253 at 11-12, 15-16 (N.D. Cal. Aug. 27, 2014)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 117, Exhibit A at 8-14, 20-40 (C.D. Cal. May 19, 2017)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 124 at 6-11 (C.D. Cal. May 26, 2017)</p> <p><i>Netlist, Inc, v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 143 at 2-9 (C.D. Cal. June 30, 2017)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof, and Products Containing the Same</i>, Inv. No. 337-TA-1023, Nov. 14, 2017 Initial Determination at 116-121 (USITC filed Sept. 1, 2016)</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p><i>In the Matter of Certain Memory Modules and Components Thereof, and Products Containing the Same</i>, Inv. No. 337-TA-1023, Jan. 16, 2018 Commission Review at 1-2 (USITC filed Sept. 1, 2016)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof</i>, Inv. No. 337-TA-1089, Nov. 22, 2019 Complainant Netlist, Inc.’s Omnibus Response to Respondents’ and Staff’s Petitions for Review at 29-33 (USITC filed Oct. 31, 2017)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof</i>, Inv. No. 337-TA-1089, Apr. 21, 2020 Commission Opinion at 7-13 (USITC filed Oct. 31, 2017)</p> <p>Collins English Dictionary, Seventh Edition, at 16 (2005)</p> <p>The New Oxford American Dictionary, Second Edition, at 15-16 (2005)</p> <p>Newton's Telecom Dictionary, 24th Edition, at 180-81, 263 (2008)</p> <p>McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition, at 294 (2003)</p> <p>Dictionary of Computing, Fifth Edition, at 92, 94 (2004)</p> <p>Wiley Electrical and Electronics Engineering Dictionary, at 212, 256 (2004)</p> <p>A Dictionary of Computing, Fifth Edition, at 179 (2004)</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the ’506 and ’339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
29	<p>"each respective n-bit-wide data buffer includes ... a first set of tristate buffers configurable to drive the respective n-bit section of the write data to the respective module data lines, ... a second set of tristate buffers configurable to drive the respective n-bit section of the read data to the respective set of data signal lines, and logic configurable to control at least the first set of tristate buffers and the second set of tristate buffers"</p> <p>'339 patent: 27</p>	<p>"each respective n-bit-wide data buffer includes logic configurable to enable a first set of tristate buffers to activate a data path connected to one DDR DRAM device (in a rank), and disable a data path connected to a different DDR DRAM device (in a different rank), to cause the respective n-bit section of the write data to be sent from the data signal lines to the module data lines coupled to the DDR DRAM device along the activated data path and not sent to the different DDR DRAM device along the disabled data path, and further configurable to enable a second set of tristate buffers to activate a data path connected to a DDR DRAM device (in a rank), and disable a data path connected to a different DDR DRAM device (in a different rank), to cause the respective n-bit section of the read data to be sent to the data signal lines from the module data lines coupled to the DDR DRAM device along the activated data path and not sent from the different DDR DRAM device along the disabled data path"</p> <p><u>Extrinsic evidence:</u></p> <p>U.S. Patent No. 8,516,185, File History, 2012-06-21 Amendment and Request for Reconsideration after Non-Final Rejection at 7-9</p> <p>U.S. Patent No. 8,516,185, File History, 2012-09-13 Office Action at 4-5, 11-13</p> <p>U.S. Patent No. 8,516,185, File History, 2013-03-13 Amendment and Request for Reconsideration after Non-Final Rejection at 10-13</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>U.S. Patent No. 8,516,185, File History, 2013-07-11 Notice of Allowance at 2-4</p> <p>U.S. Patent No. 8,417,870, File History, 2013-02-02 Notice of Allowance at 7-9</p> <p>U.S. Patent No. 9,606,907, File History, 2015-11-23 Office Action at 5-6</p> <p>U.S. Patent No. 9,606,907, File History, 2016-10-06 Office Action at 2-5, 7</p> <p>U.S. Patent No. 9,606,907, File History, 2016-11-03 Amendment at 29-34</p> <p>U.S. Patent No. 9,606,907, File History, 2017-02-23 Corrected Notice of Allowability at 2-3</p> <p>IPR2014-01029, Paper 10 (POPR) at 4-6</p> <p>IPR2014-01029, Paper 11 (Institution Decision) at 2-3</p> <p>IPR2014-01369, Paper 11 (POPR) at 5-6, 19, 35-41.</p> <p>IPR2014-01369, Paper 12 (Institution Decision) at 2-4, 6-8</p> <p>IPR2017-00577, Paper 6 (POPR) at 2-6, 9-11, 13-17, 18-47, 50-65</p> <p>IPR2017-00577, Paper 8 (Institution Decision) at 3-4, 9-10</p> <p>IPR2017-00577, Paper 26 (Final Written Decision) at 3-4, 14-16</p> <p><i>Netlist, Inc v. Smart Modular Technologies, Inc.</i>, No. 4:13-cv-05889-YGR, Dkt. No. 253 at 11-12, 15-16 (N.D. Cal. Aug. 27, 2014)</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p><i>Netlist, Inc. v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 117, Exhibit A at 8-14, 20-40 (C.D. Cal. May 19, 2017)</p> <p><i>Netlist, Inc. v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 124 at 6-11 (C.D. Cal. May 26, 2017)</p> <p><i>Netlist, Inc. v. SK Hynix Inc. et al</i>, No. 8:16-cv-01605-JLS-JCG, Dkt. No. 143 at 2-9 (C.D. Cal. June 30, 2017)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof, and Products Containing the Same</i>, Inv. No. 337-TA-1023, Nov. 14, 2017 Initial Determination at 116-121 (USITC filed Sept. 1, 2016)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof, and Products Containing the Same</i>, Inv. No. 337-TA-1023, Jan. 16, 2018 Commission Review at 1-2 (USITC filed Sept. 1, 2016)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof</i>, Inv. No. 337-TA-1089, Nov. 22, 2019 Complainant Netlist, Inc.’s Omnibus Response to Respondents’ and Staff’s Petitions for Review at 29-33 (USITC filed Oct. 31, 2017)</p> <p><i>In the Matter of Certain Memory Modules and Components Thereof</i>, Inv. No. 337-TA-1089, Apr. 21, 2020 Commission Opinion at 7-13 (USITC filed Oct. 31, 2017)</p> <p>Collins English Dictionary, Seventh Edition, at 16 (2005)</p> <p>The New Oxford American Dictionary, Second Edition, at 15-16 (2005)</p> <p>Newton's Telecom Dictionary, 24th Edition, at 180-81, 263 (2008)</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>McGraw-Hill Dictionary of Scientific and Technical Terms, Sixth Edition, at 294 (2003)</p> <p>Dictionary of Computing, Fifth Edition, at 92, 94 (2004)</p> <p>Wiley Electrical and Electronics Engineering Dictionary, at 212, 256 (2004)</p> <p>A Dictionary of Computing, Fifth Edition, at 179 (2004)</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
30	<p>"a module controller . . . configurable to receive from the memory controller via the address and control signal lines input address and control signals for a memory write operation to write N-bit-wide write data from the memory controller into a first N-bit-wide rank of the multiple N-bit-wide ranks, and to output registered address and control signals in response to receiving the input address and control signals, wherein the registered address and control signals cause the first N-bit-wide rank to perform the memory write</p>	<p>"a control circuit configurable to receive from the memory controller via the address and control signal lines input address and control signals for a memory write operation to write N-bit-wide write data from the memory controller into a first N-bit-wide rank of the multiple N-bit-wide ranks and corresponding to a number of ranks of memory devices lower than the physical number of ranks of memory devices on the module, and in response to receiving the input address and control signals, to output registered address and control signals corresponding to the number of physical ranks of memory devices on the module, wherein the registered address and control signals cause the first N-bit-wide rank to perform the memory write operation by receiving the N-bit-wide write data, wherein the module controller is further</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
	<p>operation by receiving the N-bit-wide write data, wherein the module controller is further configurable to output module control signals in response to at least some of the input address and control signals”</p> <p>’339 patent: 1</p>	<p>configurable to output module control signals in response to at least some of the input address and control signals”</p> <p><u>Extrinsic evidence:</u></p> <p>U.S. Patent No. 9,318,160 at 18:33-39, 22:19-42.</p> <p>U.S. Patent No. 8,787,060 at 18:45-51, 22:34-57.</p> <p>U.S. Patent No. 10,902,886 at 18:67-19:9, 22:57-23:15.</p> <p>The Dictionary of Multimedia Terms & Acronyms, Fourth Edition, at 94 (2005)</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the ’506 and ’339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist’s claim construction positions and any testimony of Netlist’s expert(s) and witnesses.</p>
31	<p>“a module controller . . . configurable to receive from the memory controller via the address and control signal lines input address and control signals for a memory write operation to write N-bit-wide write data from the memory controller into a first N-bit-wide rank among the multiple N-bit-wide ranks, and to output registered address and control signals in response to the input address and control signal,</p>	<p>“a control circuit configurable to receive from the memory controller via the address and control signal lines input address and control signals for a memory write operation to write N-bit-wide write data from the memory controller into a first N-bit-wide rank among the multiple N-bit-wide ranks and corresponding to a number of ranks of memory devices lower than the physical number of ranks of memory devices on the module, and in response to the input address and control signals, to output registered address and control signals corresponding to the number of physical ranks of memory devices on the module, wherein the</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
	<p>wherein the registered address and control signals cause the first N-bit-wide rank to perform the memory write operation by receiving the N-bit-wide write data, wherein the module controller is further configurable to transmit module control signals to the n/2 data transmission circuits in response to the input address and control signals”</p> <p>’339 patent: 11</p>	<p>registered address and control signals cause the first N-bit-wide rank to perform the memory write operation by receiving the N-bit-wide write data, wherein the module controller is further configurable to transmit module control signals to the n/2 data transmission circuits in response to the input address and control signals”</p> <p><u>Extrinsic evidence:</u></p> <p>U.S. Patent No. 9,318,160 at 18:33-39, 22:19-42.</p> <p>U.S. Patent No. 8,787,060 at 18:45-51, 22:34-57.</p> <p>U.S. Patent No. 10,902,886 at 18:67-19:9, 22:57-23:15.</p> <p>The Dictionary of Multimedia Terms & Acronyms, Fourth Edition, at 94 (2005)</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the ’506 and ’339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist’s claim construction positions and any testimony of Netlist’s expert(s) and witnesses.</p>
32	<p>“a module controller . . . configurable to receive from the memory controller via the address and control signal lines first address and control signals for a first memory operation to read first N-bit-wide data from a first N-bit-wide rank among the multiple ranks and to</p>	<p>“a control circuit configurable to receive from the memory controller via the address and control signal lines first address and control signals for a first memory operation to read first N-bit-wide data from a first N-bit-wide rank among the multiple ranks and corresponding to a number of ranks of memory devices lower than the physical number of ranks of memory devices on the module, and to subsequently receive second address and control</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
	<p>subsequently receive second address and control signals for a second memory operation to read second N-bit-wide data from a second N-bit-wide rank among the multiple ranks, the module controller being further configurable to output first registered address and control signals for the first memory operation in response to receiving the first address and control signals and to output second registered address and control signals for the second memory operation in response to receiving the second address and control signals, wherein the first registered address and control signals cause the first N-bit-wide rank to output the first N-bit-wide data associated with the first memory operation, and the second registered address and control signals cause the second N-bit-wide rank to output the second N-bit-wide data associated with the second memory operation, wherein the module controller is further configurable to output first module control signals for the first memory operation in response to receiving the first address and control signals and to output second module control signals for the second memory operation in response to receiving the second address and control signals”</p> <p>’339 patent: 19</p>	<p>signals for a second memory operation to read second N-bit-wide data from a second N-bit-wide rank among the multiple ranks and corresponding to a number of ranks of memory devices lower than the physical number of ranks of memory devices on the module, and in response to receiving the first address and control signals, to output first registered address and control signals for the first memory operation corresponding to the number of physical ranks of memory devices on the module, and in response to receiving the second address and control signals, to output second registered address and control signals for the second memory operation corresponding to the number of physical ranks of memory devices on the module, wherein the first registered address and control signals cause the first N-bit-wide rank to output the first N-bit-wide data associated with the first memory operation, and the second registered address and control signals cause the second N-bit-wide rank to output the second N-bit-wide data associated with the second memory operation, wherein the module controller is further configurable to output first module control signals for the first memory operation in response to receiving the first address and control signals and to output second module control signals for the second memory operation in response to receiving the second address and control signals”</p> <p><u>Extrinsic evidence:</u></p> <p>U.S. Patent No. 9,318,160 at 18:33-39, 22:19-42.</p> <p>U.S. Patent No. 8,787,060 at 18:45-51, 22:34-57.</p> <p>U.S. Patent No. 10,902,886 at 18:67-19:9, 22:57-23:15.</p> <p>The Dictionary of Multimedia Terms & Acronyms, Fourth Edition, at 94 (2005)</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
33	<p>"a module controller . . . configurable to receive from the memory controller via the address and control signal lines first address and control signals for a memory write operation and to subsequently receive second address and control signals for a memory read operation, the module controller being further configurable to output first registered address and control signals and first module control signals for the memory write operation in response to the first address and control signals, and to output second registered address and control signals and second module control signals for the memory read operation in response to the second address and control signals"</p> <p>'339 patent: 27</p>	<p>"a control circuit configurable to receive from the memory controller via the address and control signal lines first address and control signals for a memory write operation corresponding to a number of ranks of memory devices lower than the physical number of ranks of memory devices on the module, and to subsequently receive second address and control signals for a memory read operation corresponding to a number of ranks of memory devices lower than the physical number of ranks of memory devices on the module, and in response to the first address and control signals, to output for the memory write operation first module control signals and first registered address and control signals corresponding to the number of physical ranks of memory devices on the module, and in response to the second address and control signals, to output for the memory read operation second module control signals and second registered address and control signals corresponding to the number of physical ranks of memory devices on the module"</p> <p><u>Extrinsic evidence:</u></p> <p>U.S. Patent No. 9,318,160 at 18:33-39, 22:19-42.</p> <p>U.S. Patent No. 8,787,060 at 18:45-51, 22:34-57.</p> <p>U.S. Patent No. 10,902,886 at 18:67-19:9, 22:57-23:15.</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>The Dictionary of Multimedia Terms & Acronyms, Fourth Edition, at 94 (2005)</p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
34	<p>"wherein the first set of tristate buffers are enabled for the first time period in accordance with a latency parameter"</p> <p>'339 patent: 34</p>	<p>Plain and ordinary meaning.</p> <p><u>Extrinsic evidence:</u></p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
35	<p>"wherein the second set of tristate buffers are enabled for the second time period in accordance with a latency parameter"</p> <p>'339 patent: 35</p>	<p>Plain and ordinary meaning.</p> <p><u>Extrinsic evidence:</u></p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
36	<p>"A N-bit-wide memory module mountable in a memory socket of a computer system and configurable to communicate with a memory controller of the computer system via address and control signal lines and N-bit wide data signal lines, the N-bit wide data signal lines including a plurality of sets of data signal lines, each set of data signal lines is a byte wide, the memory module comprising:"</p> <p>'339 patent: 1 and dependent claims</p>	<p>The Preamble is limiting.</p> <p>Plain and ordinary meaning.</p> <p><u>Extrinsic evidence:</u></p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
37	<p>"A N-bit-wide memory module mountable in a memory socket of a computer system and configured to communicate with a memory controller of the computer system via address and control signal lines and N-bit wide data signal lines, the N-bit wide data signal lines including a plurality of sets of data signal</p>	<p>The Preamble is limiting.</p> <p>Plain and ordinary meaning.</p> <p><u>Extrinsic evidence:</u></p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
	<p>lines, the memory module comprising:"</p> <p>'339 patent: 11, 19, and dependent claims</p>	<p>this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
38	<p>"A memory module mountable in a memory socket of a computer system and configurable to communicate with a memory controller of the computer system via address and control signal lines and data signal lines, the data signal lines including a plurality of sets of data signal lines, each set of data signal lines is n bit wide, the memory module comprising:"</p> <p>'339 patent: 27 and dependent claims</p>	<p>The Preamble is limiting.</p> <p>Plain and ordinary meaning.</p> <p><u>Extrinsic evidence:</u></p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>
39	<p>"A memory module operable in a computer system to communicate with a memory controller of the computer system via a memory bus including control and address (C/A) signal lines and a data bus, the memory module comprising"</p> <p>'506 patent: 1 and dependent claims</p>	<p>The Preamble is limiting.</p> <p>Plain and ordinary meaning.</p> <p><u>Extrinsic evidence:</u></p> <p>Defendants may rely on testimony of Dr. Liu and/or Dr. Min to explain the technology, the state of the art at the time the applications leading to the '506 and '339 patents were filed, the level of ordinary skill in the relevant art, and the meaning of this claim element to a person of ordinary skill in the art at the time of the alleged invention, including whether a person of ordinary skill in the</p>

	Claim Terms, Phrases, and/or Clauses for Construction	Preliminary Proposed Constructions and Extrinsic Evidence
		<p>art could discern the boundaries of this claim element with reasonable certainty.</p> <p>Defendants may also rely on Dr. Liu and/or Dr. Min to respond to Netlist's claim construction positions and any testimony of Netlist's expert(s) and witnesses.</p>

In addition to the above list of terms identified for construction, Samsung hereby incorporates the list of terms identified as being indefinite under 35 U.S.C. § 112(2) in Samsung's Invalidity Contentions served on June 29, 2022 and July 13, 2022.

Samsung is prepared to meet and confer with Netlist at a mutually agreeable time to combine and finalize the parties' respective lists of claim terms, phrases, and/or clauses to be construed and to facilitate the preparation of the Joint Claim Construction and Prehearing Statements.

II. PRELIMINARY IDENTIFICATION OF EXTRINSIC EVIDENCE

In connection with this disclosure, Samsung also hereby provide the documents required by P.R. 4-2(b) - extrinsic evidence that it may rely on to support its claim construction positions. *See* SAM-NET00399614-00403481, SAM-NET00403486-00403581. By making this preliminary identification of extrinsic evidence, Samsung does not concede that extrinsic evidence is necessary to construe the claim terms at issue.

Samsung expressly reserves the right to rely on extrinsic evidence that Netlist relies upon. Samsung further expressly reserves the right to rely on any prior art cited in Samsung's Invalidity Contentions. In addition, Samsung expressly reserves the right to rely on any other extrinsic evidence identified after further investigation or discovery or for any other reason, including in order to rebut any extrinsic evidence Netlist identifies.

In addition to the extrinsic evidence identified herein, Samsung may rely upon one or more experts to testify regarding indefiniteness, the proposed constructions, or to address constructions or arguments Netlist presents. Such testimony could include, *inter alia*, an explanation of the meaning of the identified claim terms in the context of the subject matter disclosed in the asserted patents, a description of the state of the technology relating to the alleged inventions claimed in the asserted patents, and how a person of ordinary skill in the art would interpret the identified claim terms at the time the applications for the asserted patents were filed, including testimony that a person of ordinary skill in the art would find the identified claim terms indefinite for the reasons set forth above.

Date: August 5, 2022

Respectfully submitted,

/s/ Tony Nguyen

Ruffin B. Cordell
TX Bar No. 04820550
cordell@fr.com
Michael J. McKeon
D.C. Bar No. 459780
mckeon@fr.com
FISH & RICHARDSON P.C.
1000 Maine Avenue, SW
Washington, DC 20024
Telephone: (202) 783-5070
Facsimile: (202) 783-2331

Katherine Reardon
NY Bar No. 5196910
kreardon@fr.com
FISH & RICHARDSON P.C.
1180 Peachtree St., NE, 21st Floor
Atlanta, GA 30309
Telephone: (404) 892-5005
Facsimile: (404) 892-5002

Francis J. Albert
CA Bar No. 247741
albert@fr.com
FISH & RICHARDSON P.C.
12860 El Camino Real, Ste. 400
San Diego, CA 92130
Telephone: (858) 678-5070
Facsimile: (858) 678-5099

Tony Nguyen
TX Bar No. 24083565
nguyen@fr.com
FISH & RICHARDSON P.C.
1221 McKinney Street, Ste. 2800
Houston, TX 77010
Telephone: (713) 654-5300
Facsimile: (713) 652-0109

Melissa Richards Smith
melissa@gillamsmith.com
GILLAM & SMITH, LLP
303 South Washington Ave.
Marshall, Texas 75670
Telephone: (903) 934-8450
Facsimile: (903) 934-9257

*Attorneys for Defendants Samsung Electronics
Co., Ltd.; Samsung Electronics America, Inc.;
and Samsung Semiconductor, Inc.*

CERTIFICATE OF SERVICE

I hereby certify that on August 5, 2022, a true and correct copy of the foregoing was served on counsel of record for Plaintiff via electronic mail.

/s/ Tony Nguyen
Tony Nguyen